

PYCNOGONIDA

FROM THE

“MICHAEL SARS” NORTH ATLANTIC DEEP-SEA EXPEDITION 1910

BY

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WITH 1 PLATE AND 9 FIGURES IN THE TEXT

During the cruise of the "Michael Sars" in the North Atlantic in 1910 Pycnogonida were collected at six stations, altogether about a hundred individuals belonging to nine species distributed among the genera *Colossendeis*, *Nymphon* and *Boreonymphon*. Two species, one of *Colossendeis* and the other of *Nymphon* were new to science. Two thirds of the material in hand belong to a single species: *Boreonymphon robustum*.

The six stations are:

- 24 lat. 35° 34' N., long. 7° 35' W. May 6—7, 1910.
- 25 B lat. 35° 46' N., long. 8° 16' W. May 7—8, 1910.
- 38 lat. 26° 3' N., long. 14° 36' W. May 20, 1910.
- 41 lat. 28° 8' N., long. 13° 35' W. May 23, 1910.
- 70 lat. 42° 29' N., long. 51° 15' W. June 30, 1910.
- 102 lat. 60° 57' N., long. 4° 38' W. August 10, 1910.

Colossendeis Jarzynsky 1870.

Colossendeis proboscidea Sabine.

The collection includes eight specimens of this species, all females ranging in length from 37 to 55 mm. One specimen had been placed in a bottle, along with a specimen of *Boreonymphon robustum*, labelled simply Stat. 102, while the other specimens were found in a separate bottle without label. Presumably they were all taken at Stat. 102, in the trawl at a depth of 1000 metres.

This species has a wide distribution in the Arctic Ocean, and was taken by the Norwegian North Atlantic Expedition in 412 fathoms to the west of Storeggen.

Colossendeis angusta G. O. Sars.

Two adult females, 29.5 mm in length were taken, one at Stat. 102 in the trawl at 1000 metres, and the other at Stat. 70, in 1215 metres.

Colossendeis angusta inhabits the Arctic Ocean between Jalmal and Greenland, as well as the Norwegian Sea and the northern part of the Atlantic Ocean. It occurs along the eastern coast of North America as far south as to 38° 15' N., 73° 15' W. and as deep as 1242 fathoms (WILSON).

Colossendeis leptorhynchus Hoek.

Three adult males were taken: one at Stat. 24 in the trawl at 1615 metres, one at Stat. 25 B in the trawl at 2055 metres, and one at Stat. 70 in the silk net at about 1100 metres (1700 metres of wire out).

The two first mentioned were each 36 mm in length, the proboscis measuring 23 mm; the individual from Stat. 70 was larger, 42 mm in length. This species was taken by the "Challenger" at several places between lat. 33° and 51° south, and a variety (*C. leptorhynchus*, var. *septentrionalis* Caullery) was found by the "Caudan" at a depth of 1710 metres in the Bay of Biscay. The "Michael Sars" specimens correspond well with HOEK'S description except that the proboscis is a little shorter, and the capture of this species at Stat. 70 greatly extends its known distribution.

Colossendeis colossea E. B. Wilson.

Of this species four male specimens were taken: two at Stat. 24 in the trawl at 1615 metres, and two at Stat. 25 B in the trawl at 2055 metres, besides these also a proboscis, 31 mm in length, from Stat. 70 at 1100 metres. The specimens from Stat. 24 are 42 and 43 mm in length respectively, and 426 mm in circumference, while those from Stat. 25 B are 45 and 50 mm in length, and 453 and 507 mm in circumference, respectively. They all correspond closely to the diagnosis given by WILSON, but the proboscis is a little narrower and the accessory feet somewhat shorter; thus the feet of an animal 48 mm in length measure only 85 mm instead of according to WILSON about 100 mm.

C. colossea has previously been recorded from the ocean off Greenland (lat. 61° 44' N., long. 30° 29' W.), and southwards along the eastern coast of America as far as lat. 39° 43' N., long. 70° 53' W., at depths from 810 to 1300 fathoms.

The "Michael Sars" material extends the known geographical distribution to this species, and shows that it varies very little.

Colossendeis michaelisarsii n. sp.

Pl. I, fig. A.

A female specimen taken at Stat. 41 in the trawl at 1365 metres must be looked upon as the type of a new species, with the following diagnosis:—

Proboscis almost the same length as the rest of the body (abdomen included), swollen at the middle, bent downwards; abdomen nearly one third the length of the body (without proboscis); oculiferous tubercle low, obtusely conical, with two unpigmented ocelli; palpi shorter than the total length of the body, the third joint being about

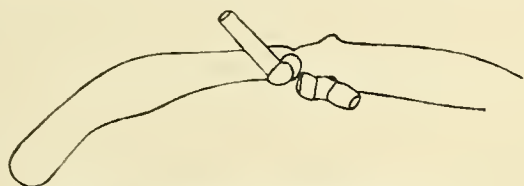


Fig. 1. *Colossendeis michaelisarsii* n. sp.
Proboscis and oculiferous tubercle, side view.

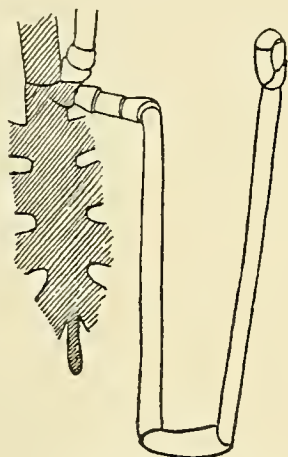


Fig. 2. *Colossendeis michaelisarsii* n. sp.
Left false leg.

twice as long as the fifth; the two tarsal joints about the same length, and four times as long as the end-claw. The entire length of the body is about 50 mm; the proboscis being 25 mm, the trunk 19 mm, and the abdomen 6 mm in length, and the circumference about 480 mm.

The proboscis is directed downwards (fig. 1), cylindrical in its proximal third, with a diameter of about 3 mm; at the middle it swells so as to measure 4½ mm in diameter, decreasing to 3½ mm, and swelling again at the end to 3½ mm. The mouth is large and triangular. The trunk is robust, somewhat flattened, with a width of 4 mm, and a height of 4½ mm. A distinct sutural line, dividing the lateral appendages from the central portions of the body, is to be seen on the dorsal surface. The proboscis as well as the whole body, dorsally and ventrally, are furnished with tiny hairs, barely

visible to the naked eye. The extremity of the abdomen is a little swollen and pointed. The palpi are 41 mm long, the two first joints being wider than they are long (see pl. I, fig. A); third joint is 16 mm in length, and only slightly swollen at the extremities; fourth joint 1½ mm long and nearly equally wide; fifth joint 7 mm in length, sixth joint 2 mm, seventh joint 4 mm, eighth joint 3 mm, ninth joint 2 mm and tenth joint 3 mm, slender and tapering. The first two joints are about 2 mm wide, the following three joints about 1½ mm, the last five joints tapering gradually outwards. Except for the two proximal joints, the palpi are furnished with short stiff hairs, those on the five distal joints being the stoutest and longest. The accessory feet (fig. 2) are about 72 mm long, and, as usual in this genus, attached close behind the palpi. The first three joints are 1½ mm long, and of nearly the same width; fourth joint about 24 mm long and 1½ mm wide, somewhat swollen at the outer extremity; fifth joint 6 mm long, but as stout as the fourth

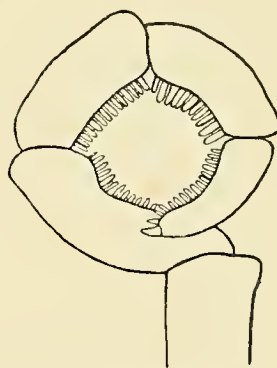


Fig. 3. *Colossendeis michaelisarsii* n. sp.
Grasping organ forming the tip of the false leg (right side).

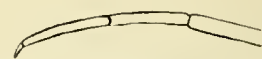


Fig. 4. *Colossendeis michaelisarsii* n. sp.
Terminal portion of walking leg.

joint, and also swollen at the outer extremity; sixth joint 26 mm long, a little more than 1 mm across; seventh joint nearly 4 mm, eighth joint 9 mm, and tenth joint about 3 mm long, tenth joint slender and tapering, seventh, eighth and ninth about 1 mm across. The last four joints are furnished with numerous fine transverse ridges, and form together a spiral-shaped prehensile organ (fig. 3), so that the seventh and the ninth, the eighth and the tenth joints are situated approximately parallel to one another. The accessory feet are covered with sparse, very short hairs, hardly visible without a magnifying glass.

The fourth joint of the true feet is longest and stoutest, the rest decreasing in length and thickness, the swelling at the extremities of the joints being very slight. On the fourth foot the fourth joint is 59 mm in length and 2½ mm in thickness; fifth joint 52 mm long and 2 mm thick;

sixth joint 42 mm long and about $1\frac{1}{2}$ mm thick; the first and the second tarsal joints (fig. 4) are a little more than 5 mm long and about 1 mm thick, tapering towards the tip; the endclaw is $1\frac{1}{2}$ mm long, pointed, slightly curved; no auxiliary claws. The whole foot is furnished with microscopical stiff hairs which are most prominent on the upper side, and arranged in symmetrical longitudinal rows.

This species resembles most closely *Colossendeis gigas*, which differs from it in the following points:—The proboscis is relatively longer and straight; the accessory feet as well as the true feet are relatively longer; the abdomen is relatively short, only a little more than one-half the length of the body; the lenses of the eyes are wanting; the third joint of the palpi is very little longer than the fifth, and the distal five joints of the palpi show a different reciprocal relation in regard to size; the second tarsal joint is only half as long as the first.—The last mentioned character, however, seems to vary a great deal, the relation between the length of the two tarsal joints of *C. gigas* differing greatly not only among the different specimens, but even in the legs of the same specimen.—

Nymphon Fabricius 1794.

Nymphon brevicollum Hoek.

One female specimen, $5\frac{1}{2}$ mm in length, was taken at Stat. 70 in the young-fishtrawl at 1100 metres.

This species inhabits the northern Atlantic; it was found by the "Challenger" to the south of Halifax at a depth of 83 fathoms, not far from the "Michael Sars" record.

Nymphon grossipes Fabricius.

Three specimens (two males and one female) were taken at Stat. 102 in a net (1500 metres of wire out). The female is the largest, having a total length of $8\frac{1}{2}$ mm; the two males are about $7\frac{1}{2}$ mm long, and one of them bears a great number of newly-hatched young (about $\frac{1}{2}$ mm long) and some eggs.

The geographical distribution of this species embraces the northern Atlantic and the Norwegian Sea, the Arctic Ocean off Greenland, Spitsbergen and Novaja Semlja, as well as the Kara Sea.

Nymphon longituberculatus n. sp.

Pl. I, fig. B.

One male was taken at Stat. 38 in the young-fish trawl at 83 metres. The segment of the head is very robust, and its anterior portion is almost twice as wide

as the trunk; the neck is short, the oculiferous tubercle exceedingly long, a little longer than the segment of the head (without the proboscis), and with four brown eyes at the point; the legs are relatively short. Total length $3\frac{1}{2}$ mm.



Fig. 5. *Nymphon longituberculatus* n. sp.
Side view, to show the length of oculiferous tubercle and abdomen relative to the that of the body.

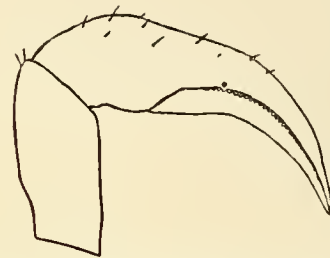


Fig. 6. *Nymphon longituberculatus* n. sp.
Left chelifer.

The proboscis with the segment of the head exceeding 1 mm, the trunk nearly $1\frac{1}{2}$ mm, and the abdomen about 1 mm in length; circumference 16 mm. The segment of the head, seen from above is approximately triangular with an incision at the front. Round the two ventral appendages carrying the pincers, we find a ring of microscopic hairs. The proboscis is of medium length, somewhat stouter than the trunk, directed downwards, cylindrical, rounded at the point; the mouth big, triangular. The neck is very short, the body relatively slender, ventral appendages well separated, somewhat swollen at the distal end. The abdomen is very long, a little bent upwards, clubshaped, tapering towards the point and furnished with some microscopic hairs. The extreme length of the oculiferous tubercle unprecedented among the species of *Nymphon*, is especially characteristic of this species (fig. 5). It is approximately cylindrical, rounded at the end, and having four brown oval eyes. The pincers are strong, the distal joint longer than the scapus, and furnished with a few hairs along the outer margin (fig. 6). The pincers are as long or a little longer than the palmen, and furnished with pointed denticulate spines.

The palpi are five-jointed, slender and delicate, a little longer than the proboscis; second joint is the longest, the two distal joints furnished with small hairs (fig. 7). The accessory feet are ten-jointed and 5 mm long. The two anterior joints are short, as stout or stouter than the remaining joints, which taper outwards. The third and

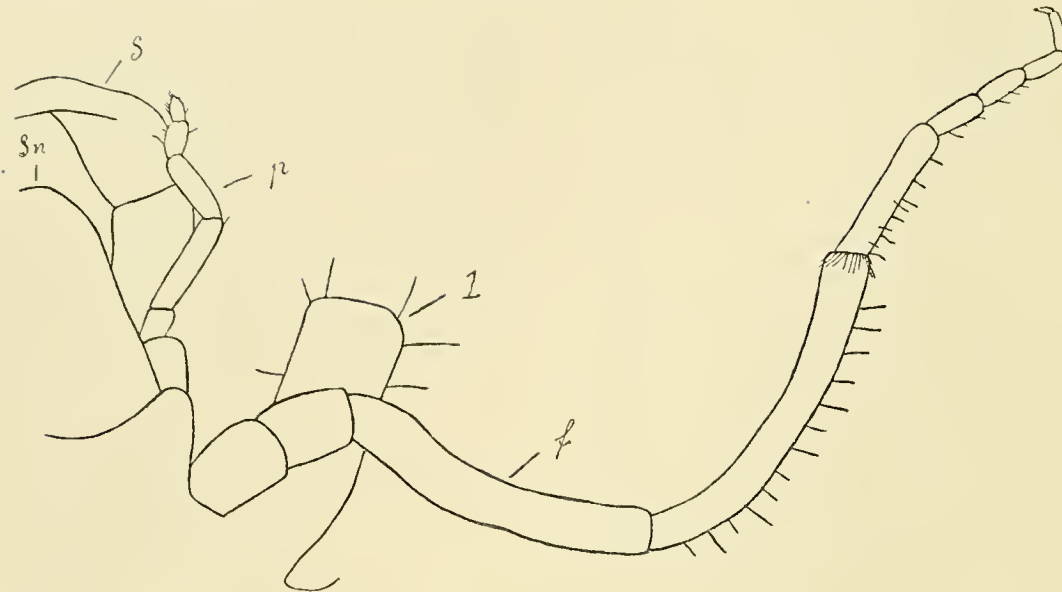


Fig. 7. *Nymphon longituberculatus* n. sp.
Palp (*p*) and false leg (*f*) of left side, *s*, chelifer, *Sn*, proboscis, *l*, first leg.

fourth joints are nearly equal in length and somewhat bent, fourth joint somewhat swollen at the distal end, and furnished with a fringe of hairs (fig. 7); fifth joint about half the length of the fourth, sixth joint about half the length of the fifth; the succeeding three joints are of about the same length, and a little shorter than the sixth; the end-claw short and slender. The inner margin of the sixth and ninth joints is furnished with a row of tall papillae (see fig. 8).

The true legs are relatively short and well separated (pl. I, fig. B). The three proximal joints are about equally stout, (second joint the longest), and furnished with long sparse hairs. The fourth joint is almost as stout as the first three and furnished with sparse short hairs. The rest of the joints taper outwards, are more densely covered with hairs, the fifth joint being the longest, and somewhat swollen at its extremity; the sixth joint which tapers

outwards, is a little shorter; the eighth joint is a little longer than the seventh, and the end-claw about half the length of the eighth joint, slightly curved (fig. 9); no auxiliary claws.

Boreonymphon G. O. Sars 1888.

Boreonymphon robustum (T. Bell).

Forty-six adult specimens, and many young ones of different sizes, were taken at Stat. 102 in 1098 metres.

There were 27 adult males and 16 adult females; the sex of the half grown individuals could not be determined without dissection. Most of the adults were 12 to 14 mm in length, but one female was 22 mm and one male 24 mm in length. The last mentioned carried eleven big young ones (up to 8 mm in length), another carried smaller ones (about 3¹/₂ mm in length) and a third carried eggs. Several of the other specimens carried young ones of different sizes, from about 1 mm (newly hatched) to 5 mm in length.

Attached to four of the largest specimens were parasitic amphipods, surrounded with a ball-shaped, grey, clayey covering, about 6 mm in diameter, within which they lay rolled up; after being straightened out, they measured about 10 mm in length. They had attached themselves to different places on the various individuals, one being found under the abdomen, another behind the pincers on one of its limbs, a third on the leg, and a fourth on the egg-ball, only a small portion which was



Fig. 8.
Nymphon longituberculatus n. sp.
Grasping apparatus forming tip of
right false leg.



Fig. 9.
Nymphon longituberculatus n. sp.
Terminal portion of left
first leg.

left, the rest having apparently been devoured (for this, however, the amphipods can hardly be held responsible).

One a male there were, besides the empty covering of an amphipod, two individuals of *Lepas*, one attached over the base of the abdomen, the other on the ventral side of the femur on the third left foot, the larger one measuring 45 mm in length.

According to Sars, great multitudes of *Boreonymphon robustum* inhabit the ocean between the Faroe Islands and Norway, where the "Michael Sars" took this rich haul. Its range of distribution includes the northern Atlantic, the Norwegian Sea, the Arctic Ocean off Greenland and Spitsbergen, as well as the Kara Sea.

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Fig. B. *Nymphon longituberculatus*.



Fig. A. *Colossendeis michaelisarsii*.

